

Inside the

# INTERNET

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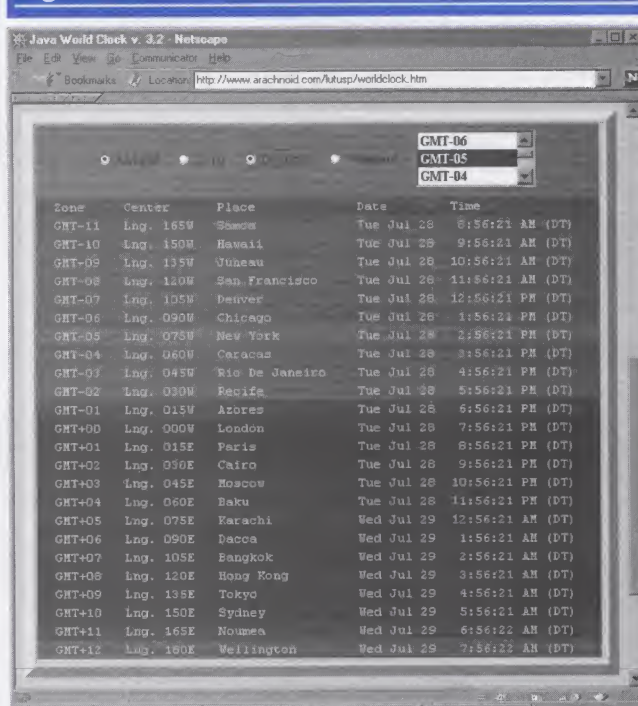
## Keeping track of time via the Internet

**T**ime is important to every one of us. And if you've got meetings to attend and deadlines to meet, knowing the correct time is even more critical—you need a clock you can count on. Some of the absolute best clocks are located on the Internet. You can access clocks, put real-time clocks on your Web pages, and even synchronize your computer's system clock with the most accurate clocks in the world. In this article we'll explain why your computer's system clock is so important, and show you how to keep it on time, all the time.

### A general theory of Internet time

The importance of keeping your computer's system clock accurate may not be immediately evident, but there are a variety of reasons why this is important. Your computer uses its clock as a timestamp for email messages, file creation and access times, and database transactions. An accurate time-stamp can prove helpful for scheduling or service billing. In addition, an accurate system clock is often a critical resource for distributed client/server applications. A server's system clock determines when a backup will take place, and records the initiation of operations, file transfers, and messages. Consistent and accurate time is

Figure A



The Java World Clock is one of many real-time clocks you can access via the Internet.

essential to good server security. Finally, a good clock is very useful to amateur meteorologists and astronomers who depend on accurate time for various observations.

### IN THIS ISSUE

- 1 Keeping track of time via the Internet
- 4 Win98 and the Internet
- 6 To frame or not to frame?
- 8 Frame it the easy way
- 10 The problem of direct linking

- 13 Site of the month: Everything E-mail
- 13 Web Fanatic: Checking your email with E-mail Notify
- 15 Search Tip: Accessing un-indexed Internet databases
- 16 Roadside café



## JavaScript clock

You can add a simple JavaScript clock to your Web site by including this code in your HTML document. The JavaScript creates a small digital clock that displays time based on your Web server's system clock.

```
<script Language="JavaScript">
```

```
<!-- Java Clock
// Navigation - Start
function goback(){
alert("Good Bye!");
history.go(-1);
}
// Navigation - Stop
// Netscapes Clock - Start
```

```
var timerID = null;
var timerRunning = false;
function stopclock (){
    if(timerRunning)
        clearTimeout(timerID);
    timerRunning = false;
}
```

```
function startclock () {
    // Make sure the clock is stopped
    stopclock();
```

```
    showtime();
}

function showtime () {
    var now = new Date();
    var hours = now.getHours();
    var minutes = now.getMinutes();
    var seconds = now.getSeconds()
    var timeValue = "" + ((hours > 12) ? hours - 12 : hours)
    timeValue += ((minutes < 10) ? ":0" : ":") + minutes
    timeValue += ((seconds < 10) ? ":0" : ":") + seconds
    timeValue += (hours >= 12) ? " P.M." : " A.M."
    document.clock.face.value = timeValue;
    // you could replace the above with this
    // and have a clock on the status bar:
    // window.status = timeValue;
    timerID = setTimeout("showtime()",1000);
    timerRunning = true;
}

// Netscapes Clock - Stop

// end Helpers -->

</script>
<body onLoad="startclock()">

<center><br><table ><tr>
<form name="clock" onSubmit="0">
<input type="text" name="face" size=12 value="">
</td></table></center><br>
```

Table A

Time clocks on the Internet	Address
National Institute of Standards and Technology	<a href="http://www.boulder.nist.gov/timefreq/javaclk.htm">www.boulder.nist.gov/timefreq/javaclk.htm</a>
USNO Master Clock	<a href="http://tycho.usno.navy.mil/what.html?rwin=EST%2FEDT">tycho.usno.navy.mil/what.html?rwin=EST%2FEDT</a>
Java World Clock v 3.2	<a href="http://www.arachnoid.com/lutusp/worldclock.htm">www.arachnoid.com/lutusp/worldclock.htm</a>
Interactive World Clock	<a href="http://www.doge.nl/~lvapeldo/worldclock/">www.doge.nl/~lvapeldo/worldclock/</a>
WORLDTIME	<a href="http://www.worldtime.com/">www.worldtime.com/</a>
The Time Zone Page (lists almost 600 cities)	<a href="http://www.01digital.com/time/">www.01digital.com/time/</a>

There are two basic methods for keeping track of time via the Internet. The first is to access one of the many real-time clock pages available, like the one shown in **Figure A** on page 1. This method can prove particularly advantageous if you need information about time zones. We've listed some of the more useful clock pages available on the Internet in **Table A**. Several of these clocks are either Java applets or JavaScript. You can put a simple JavaScript clock up on your own Web site using the script shown in the JavaScript clock sidebar.

## Network Time Protocol

You can also access clocks over the Internet via the Network Time Protocol (NTP). This Internet protocol has been used for twenty plus years and is undoubtedly the longest running, continuously operating protocol on the Internet. NTP is built on top of TCP/IP and provides accurate local time to an individual PC or server by synchronizing time over the Internet with a radio, atomic or other type of clock located on special time servers. NTP is capable of synchronizing a computer's system clock



Table B

NTP Servers and Resources	Address
CSTV NTP primary server	<a href="http://www.cstv.to.cnr.it/toi/uk/itscstv.html#PRIMSERV">www.cstv.to.cnr.it/toi/uk/itscstv.html#PRIMSERV</a>
Network Time Protocol at NRC	<a href="http://www.nrc.ca/inms/ntpnr.html">www.nrc.ca/inms/ntpnr.html</a>
NIST Network Time Service	<a href="http://www.bldrdoc.gov/timefreq/service/nts.htm">www.bldrdoc.gov/timefreq/service/nts.htm</a>
NML Network Time Protocol	<a href="http://nml.csir.co.za/electrical/ntp.html">nml.csir.co.za/electrical/ntp.html</a>
USNO Network Time Services	<a href="http://tycho.usno.navy.mil/ntp.html">tycho.usno.navy.mil/ntp.html</a>
Time Synchronization Server	<a href="http://www.eecis.udel.edu/~ntp/index.html">www.eecis.udel.edu/~ntp/index.html</a>
PC Time Software	<a href="http://www.ubr.com/clocks/timesw/timesw.html">www.ubr.com/clocks/timesw/timesw.html</a>
Public NTP Time Servers	<a href="http://www.eecis.udel.edu/~mills/ntp/servers.html">www.eecis.udel.edu/~mills/ntp/servers.html</a>
NTP USENET newsgroup	<a href="mailto:news:comp.protocols.time.ntp">news:comp.protocols.time.ntp</a>

within milliseconds. Time servers typically use Coordinated Universal Time (UTC). There are many time synchronization servers on the Internet. We've listed some of the more prominent NTP servers and related information in [Table B](#). You can read more about NTP servers at the University of Delaware EE/CIS joint computer lab Web site, which is located at

[www.eecis.udel.edu/~ntp/](http://www.eecis.udel.edu/~ntp/)

You can also download NTP source code from the university's FTP Archive at

<ftp://ftp.udel.edu/pub/ntp/>

## Synchronization utilities

One of the simplest methods for keeping your system clock accurate is a NTP time synchronization utility. These utilities periodically connect directly to NTP servers via the Internet and can update your computer's system clock within a millisecond. Most of these programs are simple to use and provide a variety of options for controlling when and how the utility will update your system clock. We've listed three good NTP time synchronization utilities below.

### Tardis

This utility corrects your PC's clock within one thousandth of a second using one of 48 networked time servers. Tardis can synchronize a PC clock via a SLIP/PPP connection or a LAN environment. The utility includes a host of options for tracking clock drift, maximum and minimum connection times, and rejecting unsynchronized NTP. And Tardis can use the time protocols specified in RFC868 (Time) and RFC1361 (SNTP) as both a client and a server. Tardis is avail-

able for Windows 95, 98, or NT systems. The utility costs \$20 but you can download a shareware copy at

[www.kaska.demon.co.uk](http://www.kaska.demon.co.uk)

### AtomTime98

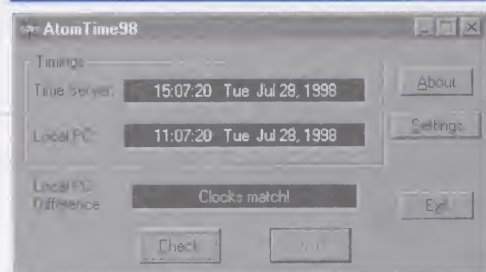
This 32-bit utility, shown in [Figure B](#), connects through the Internet to the atomic clock time server in Boulder, Colorado. The current atomic clock time is fetched, compared to your system's time, and the difference is displayed. You update your PC clock to match the atomic clock manually or configure the utility to update your system's clock automatically. AtomTime98 only costs \$10 but you can download a shareware version for Windows 95 or NT 4.0 at

[www.atomtime.com/](http://www.atomtime.com/)

### TimeRC

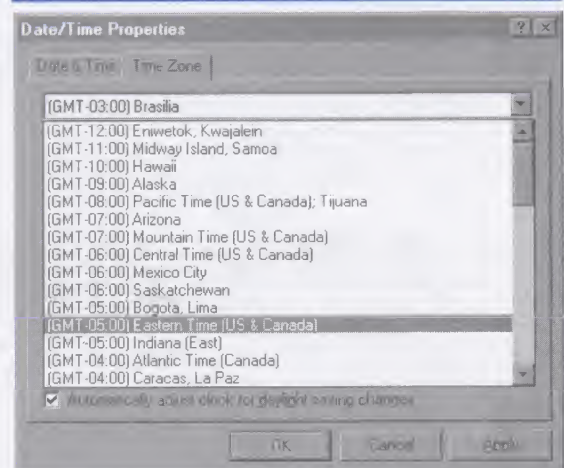
TimeRC is a free utility that uses Internet time servers to set the time on your Windows 95 system. You can choose from 32 different time servers, and you can configure the utility to auto-connect to any of these servers to update your PC's clock. TimeRC also

Figure B



AtomTime98 synchronizes your computer's system clock with the atomic clock time server in Boulder, Colorado.

Figure C



You'll need to configure your Windows Time Zone settings correctly to use a NTP synchronization server.



includes information on the sun distance, moon phase, latitude and longitude, future moons, and meteor showers. TimeRC is available for Windows 95 based systems. You can download a copy of this utility at

[www.geocities.com/SiliconValley/Lakes/7206/TimeRC.html](http://www.geocities.com/SiliconValley/Lakes/7206/TimeRC.html)

If you decide to use a NTP time synchronization utility you'll need to make sure your Windows Time Zone setting is correct—otherwise your clock setting will be several hours off. Go to the Start menu and select Settings/Control Panel, then open up the Date/Time application (you can also access this application by right clicking on the time clock in your systems tray and selecting Adjust Time/Date from the resulting pop-up menu). Next click on the Time Zone tab and select your time zone in the dropdown menu, as shown in **Figure C** on page 3.

## Other Resources

There are a variety of other resources relating to time. Here are just a few:

- **Time of Internet:** This Web site provides a wealth of information, curios, news, Internet sites and services about time measurement.  
[eolo.cstv.to.cnr.it/toi/uk/toi.html](http://eolo.cstv.to.cnr.it/toi/uk/toi.html)
- **National Institute of Standards and Technology:** This government organization maintains the primary frequency standard for the U.S.  
[www.boulder.nist.gov/timefreq/](http://www.boulder.nist.gov/timefreq/)
- **Yahoo!'s Time page:** This page includes links covering calendars, Horology (the science of measuring time), NTP, time zones, and timepieces.  
[www.yahoo.com/Science/Measurements\\_and\\_Units/Time/](http://www.yahoo.com/Science/Measurements_and_Units/Time/)

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## Win98 and the Internet

It's here. By the time you read this, Windows 98 will have been in the stores for about five months. If you haven't already upgraded, you're probably wondering whether you should.

The answer to that depends on what you want and need from your operating

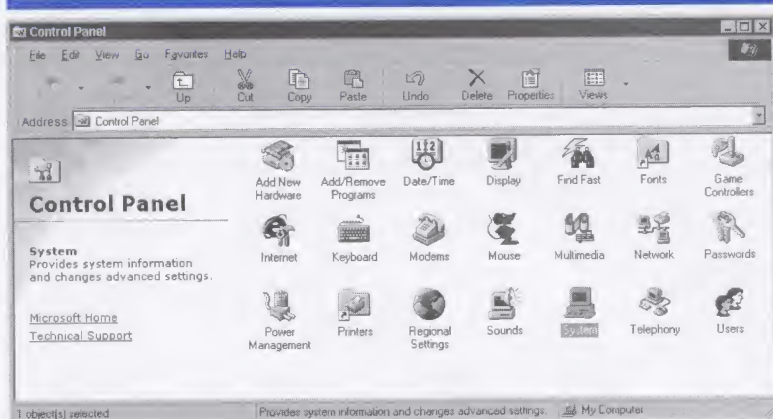
system and whether you think the upgrade is worth \$89 of your hard-earned money. If your system is running well and none of the new features excite you very much, you may be reluctant to change anything. However, Windows 98 does have some nice features to tempt you, and unless you have a compelling reason not to upgrade you should give it some thought.

In this article, we'll take a quick look at a few of Windows 98's new features. Many of these features will be of particular interest to *Inside the Internet* readers because, as you probably know, Microsoft went to great lengths to increase Internet functionality.

### General features

The "look and feel" of the new operating system is basically the same as Windows 95. In most respects, you can make it identical. But Windows 98 offers many more options for customization. For example, you can single-click icons to open programs, keep the contents of windows visible when you

Figure A



Many of Windows 98's customization options mimic Web browsing features.



move them, and animate menus so they slide down (or out) when they appear.

Many of the customization options mimic Web browsing features. In **Figure A**, you can see the Control Panel window after we set it up with toolbars and selected the "View as Web Page" option. The address bar works just like the one on your Web browser. You can enter the path to any folder on your system, and the window will display the contents. These options are available in other system windows, including Windows Explorer.

Customization is nice, and it can make things more convenient. But the big issue is performance. Of course, Microsoft claims that Windows 98 is more stable than its predecessors, while its critics claim you're merely trading one set of bugs for another. As always, this is probably a matter of personal experience, depending largely on your system's hardware and software configurations.

One of the biggest improvements is file allocation. By default, Windows 98 uses the FAT16 file system, like previous versions, but it gives you the option of upgrading to the new FAT32 system.

According to Microsoft, FAT32 will improve your hard drive's performance if its capacity is at least 2 GB. Because it allocates space for files more efficiently, it yields an average of 28 percent more disk space and starts programs an average of 36 percent faster than FAT16.

Users who are planning hardware upgrades will be interested in Windows 98's USB (Universal Serial Bus) support. This feature automatically detects and installs new devices when you plug them in, and you don't have to restart your computer. Although USB was available with some versions of Windows 95, it's a standard component of Windows 98.

## Bundled software

Yes, despite the legal battles and controversy, it's there; the Windows 98 installation puts a copy of Internet Explorer 4.0 on your system.

If you're not an Explorer fan, don't worry. You can still install and use other browsers, and everything will work just fine. However, you may find that the system insists on using Explorer for some functions even if you've configured a different browser as the default.

You also get a copy of Outlook Express, a combination email/news client. If you're in the market for a new application to do either of these jobs, Windows 98 is worth a look.

Outlook Express offers support for multiple accounts and encryption. You can set up stationery, signature files, and vCards (virtual business cards) to include in your messages. You can also send and receive both email and USENET messages as plain text or format them with HTML, although you should keep in mind that many people use software that doesn't support HTML.

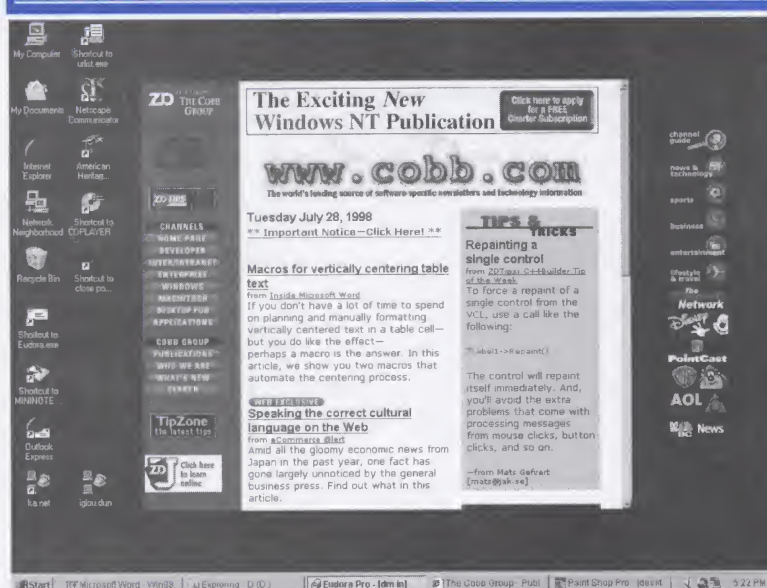
## Internet integration

Windows 98's Internet integration starts right on your desktop. Although you can still use bitmap graphics as wallpaper, the Active Desktop feature lets you use a Web page as wallpaper. **Figure B** shows a desktop that incorporates the Cobb Group's home page.

The links are active. When you click one, Windows 98 will start Explorer and send you to the page. You may find it handy to create an HTML file with your favorite links and use it as your wallpaper.

Do you need to keep up with sites that get updated frequently? Subscribe to them. You can subscribe to any site you want and create a schedule for Windows 98 to check on it.

**Figure B**



The Active Desktop feature allows you to put a Web page on your desktop.




For example, you might want to have your computer at work run the check at 8:00 A.M. so updates will be ready when you come in at 9:00. You can have the system download pages with new content or simply notify you by email when it finds modifications.

To the right of the Cobb Group's home page in Figure B, you'll see the Channel Bar. If you're interested in receiving content such as news reports on a regular schedule, use the Channel Bar to subscribe to one or more channels. The content providers will deliver updates on their own schedules.

You'll have a variety of channels at your disposal. Content providers include *The Wall Street Journal* Interactive Edition, ESPN, *National Geographic*, Disney, ZDNet, and many others.

## System requirements

The minimum system requirements for Windows 98 are a 486DX/66 processor, 16 MB of RAM, 120-290 MB of hard drive space (depending on the options you install), and a VGA monitor. The retail package requires a CD-ROM or DVD-ROM, but includes a coupon for 3.5" floppy disks. 

# To frame or not to frame?

This is the question. When frames made their debut with the release of Netscape Navigator 2.0, many people enthusiastically embraced them as the advanced feature that could bring an ordinary Web site up to the cutting edge.

On the other side, the backlash was immediate and strong. Numerous "I hate frames" sites popped up. Some rationally explained the problems that could result

from the use or abuse of frames, while others were nothing more than angry rants. Nevertheless, the message was clear: not everyone was pleased.

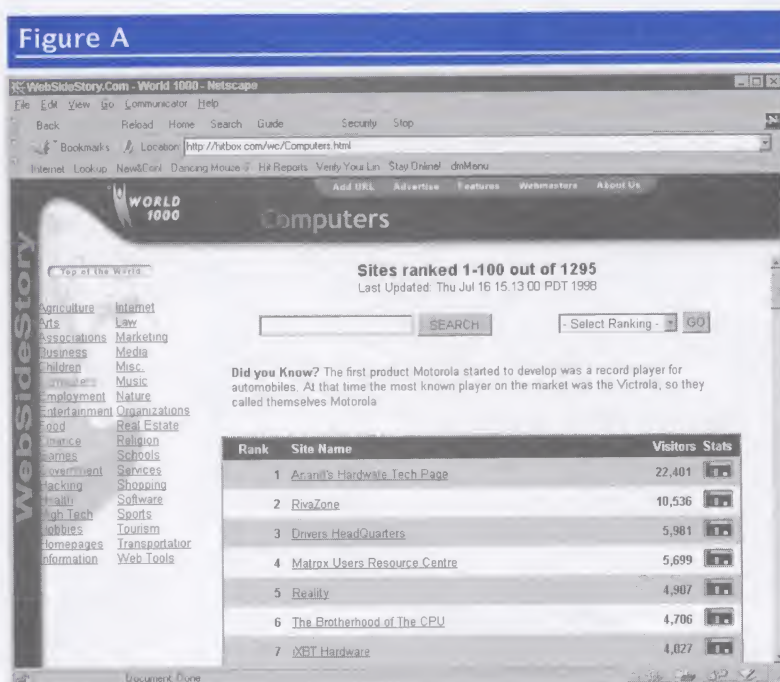
So what's all the fuss about? After two major upgrades of Netscape, are the objections still valid? Were they ever valid? Let's take a look at the pros and cons of frames.

## Pros

Frames can be a useful tool if you use them carefully. A thin frame—usually down the left side or across the top—is an effective way of keeping a navigation bar or menu visible at all times. This can make things much easier for visitors if your site is complex or if they're likely to move from section to section frequently.

There are other, special cases that may justify the use of frames. For example, some Web-based discussion boards divide the browser window into two frames. In one frame, you get a list of message titles, and in the other, the text of the currently selected message. This is a more efficient way of reading messages than clicking from one full-size page to another.

A trend that you may not have noticed is the use of borderless frames as a layout device. The idea is to fit the contents of the frames together seamlessly to give the appearance of a single page. This allows the designer to create more eye-catching layouts.



Frames can sometimes be useful as a layout device.



**Figure A** shows a page from the Web Side Story site. The designer used frames to fit the top and left-side border images together, flush with the edges of the browser's display area.

In many cases, the designers could have used tables just as effectively. But sometimes, frames can offer a greater degree of control.

## Cons

A few of the cons are technical in nature; others merely result from the potential for abuse. Among the stronger technical objections is the fact that not all browsers support frames. Frames can also interfere with the screen readers that visually impaired people use. And some people complain of a longer download time for sites that use frames.

Frames also make it difficult to view a page's source code. If you've ever tried to view the source of a page with frames, you know that all you get is the page with the frameset (the HTML code that defines the layout of the frames). This might be informative if you're trying to learn how to set up frames, but otherwise, it can be frustrating.

Similarly, the frameset page is the only one you can bookmark easily. You've probably navigated through several levels of menus on a large site, found the page with the information you needed, and set a bookmark. Later, when you wanted to go back, you discovered that the bookmark just brought you to the site's main page.

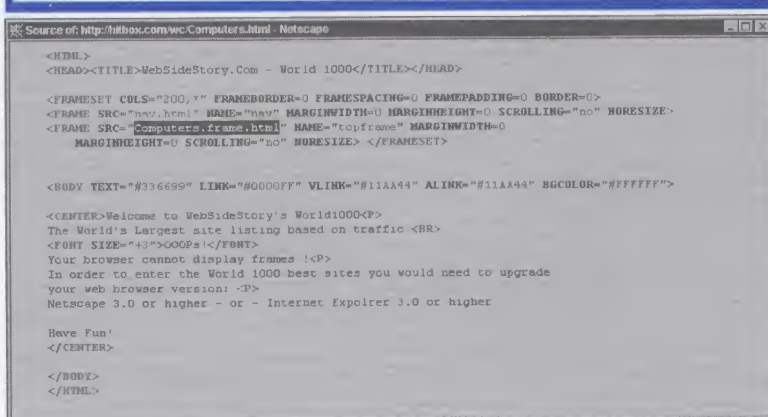
Some search engines can't index sites with frames. So you may be cutting yourself off from potential visitors if you use frames.

Looking at design issues, people who don't like frames point out that each frame gets a limited amount of screen space. This can make it more difficult to read text. It also increases the chances that visitors will have to deal with horizontal scrollbars, which can be annoying.

Sites with too many frames are likely to confuse visitors. You've probably seen sites in which the designer went overboard with frames, using so many that you weren't sure where to click, or why you should click there, or what would happen in which frame if you were brave enough to click somewhere.

Finally, as a matter of netiquette, some Web site owners who use frames don't set up links to other sites properly. Within a frame, a normal HTML link in the format

**Figure B**



```
<HTML>
<HEAD><TITLE>WebSideStory.Com - World 1000</TITLE></HEAD>
<FRAMESET COLS="200,*" FRAMEBORDER=0 FRAMESPACING=0 FRAMEPADDING=0 BORDER=0>
<FRAME SRC="nav.html" NAME="nav" MARGINWIDTH=0 MARGINHEIGHT=0 SCROLLING="no" NORESIZE>
<FRAME SRC="Computers.frame.html" NAME="topframe" MARGINWIDTH=0
MARGINHEIGHT=0 SCROLLING="no" NORESIZE> </FRAMESET>

<BODY TEXT="#336699" LINK="#0000FF" VLINK="#11AA44" ALINK="#11AA44" BGCOLOR="#FFFFFF">

<CENTER>Welcome to WebSideStory's World1000<P>
The World's Largest site listing based on traffic <BR>
<FONT SIZE="+3">OOOPS!</FONT>
Your browser cannot display frames !<P>
In order to enter the World 1000 best sites you would need to upgrade
your web browser version: <P>
Netscape 3.0 or higher - or - Internet Explorer 3.0 or higher

Beve Fun!
</CENTER>

</BODY>
</HTML>
```

You can find the URL of a framed page by viewing the frameset's source code.

`<A HREF="http://www.domain.com/site">Site  
Title</A>`

will put the linked site in a frame. At best, this gives it a smaller display area and prevents people from creating a bookmark to it. Worse, it may make it appear to be merely a part of the linking site.

## Dealing with frames as a user

When frames cause problems, the easiest thing to do is just leave the site and not go back. It's very rare that an individual site will be important enough to put up with the aggravation.

But if you want (or need) to keep using the site, there's a trick that'll help you get around some of the problems. To bookmark a page, view its source code, or display it in a full-size window, all you need is its URL.

Display the source code of the page with the frameset and find the URL of the subpage you want. If you're familiar with the way framesets work, this shouldn't be difficult. The file names might even help you figure out which one you want. Otherwise, a bit of trial-and-error might be necessary.

Highlight the URL you want by dragging the cursor over it. Hit [Ctrl][C] to copy it to your clipboard. Then, click in Netscape's Location box (or Explorer's Address box). **Figure B** shows the source code for the Web Side Story page we looked at earlier.

If the URL you copy from the frameset is a full one with "http://" at the beginning,



you'll be able to use it "as is." Just hit [Ctrl]-[V] to paste it in, hit [Enter], and you'll get the page.

If the frameset doesn't give you a full URL for the subpage, you'll need to keep some of the URL that's already in your Location box. In most cases, it'll work if you delete everything to the right of the last forward slash character. Paste the partial URL from the frameset into the Location box, appending it to the part you kept. Once again, hitting [Ctrl][V] and [Enter] gives you the page.

## Dealing with frames as a Webmaster

The best way to deal with frames while you're designing your own site is to stop and think about what you're trying to accomplish by using them. Can the same purpose be achieved some other way? If not, go ahead with frames, but use as few as possible. If you do decide to use frames you may also consider offering an alternate, non-frames version of your site.

You should also account for the possibility of visitors arriving at your site inside another site's frame. Provide a way for them to break out of it. The simplest way to do this is to insert the following code on your page in an easy-to-see spot:


```
<A HREF="thispage.html" TARGET="_top">Click  
here to break out of someone else's  
frame</A>
```

Replace thispage.html with the file name of your page. You're linking the page to itself, but when the user clicks on the link, the TARGET="\_top" attribute wipes out the other frames. This gives your page the browser's entire display area.

If you have a framed page with links that go outside your site, you should include TARGET="\_top" on those links as well. That way, you'll avoid trapping someone else's page in one of your frames.

Another problem to be aware of is the possibility that your frames may cause browsers to crash. There were quite a few complaints about this when frames first appeared. Judging by the number of complaints you see now, this problem doesn't seem to be as bad, but don't assume there's no danger. Be careful with your coding and test, test, test.

## Conclusion

When used with good judgment, frames can, in some cases, enhance a Web site's functionality. But use them sparingly and carefully. Keep things as simple as possible. And offer a non-frames version if there's any way you can present your content without them. 

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# Frame it the easy way

**O**k, so you've read the article "To frame or not to frame" in this issue, you've weighed all the pros and cons, and you've decided you want frames on your site. Now, there's another problem: setting up frames and making sure they're exactly the way you want them. This can often turn into a horribly tedious job.

Fortunately, help is available. Frame-It, from GME Systems, is an easy-to-use program that lets you create framesets and generates HTML code to implement your designs. You can find Frame-It at

[www.iinet.net.au/~bwh/frame-it.html](http://www.iinet.net.au/~bwh/frame-it.html)

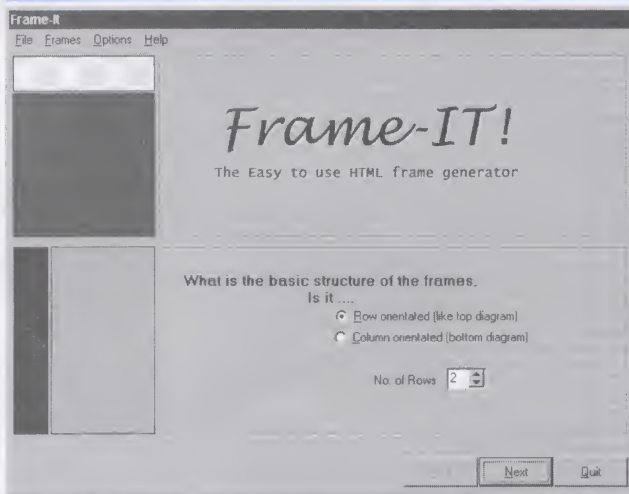
## Using Frame-It

Frame-It is more like a wizard than a full-blown application. It leads you through a series of dialog boxes, asking you for specifications along the way. **Figure A** shows the opening screen. Here, you choose the basic structure of your frames. How many do you want to start with? Should they be oriented vertically or horizontally?

Click on the Next button, and Frame-It will give you the window you see in **Figure B**. The area on the left is where you'll assign various properties to each frame, such as adjusting its size, specifying



Figure A



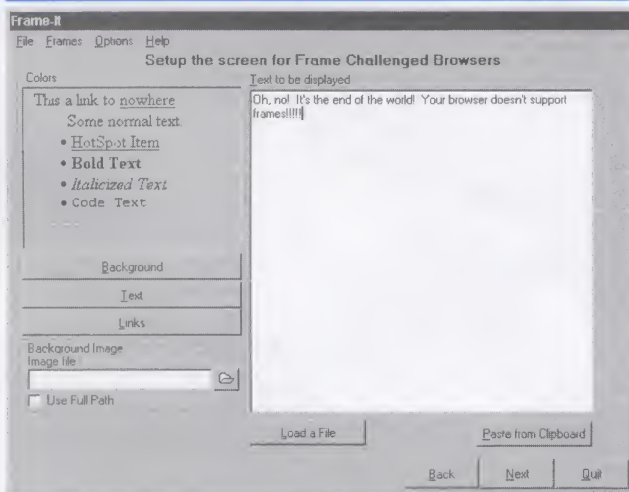
Frame-It begins by asking for the basic structure of your frames.

Figure B



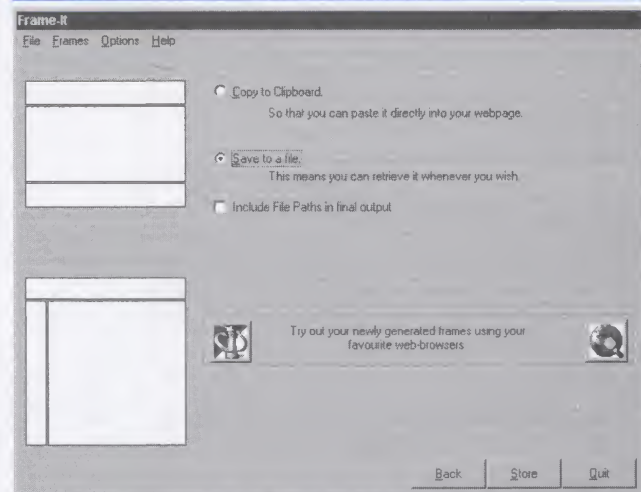
On the next screen, you'll make further specifications for your frames.

Figure C



You'll want to include a message for visitors who use browsers that don't support frames.

Figure D



Finally, tell Frame-It how to save your code, and you're ready to view it.

the type of border you want, and so on. The large area on the right shows the layout of the frames. This will change to reflect any modifications you make.

Click inside a frame to select it, then enter the specifications you want for that frame. At the very least, you'll have to name each frame and assign a file name for the page it'll be displayed on.

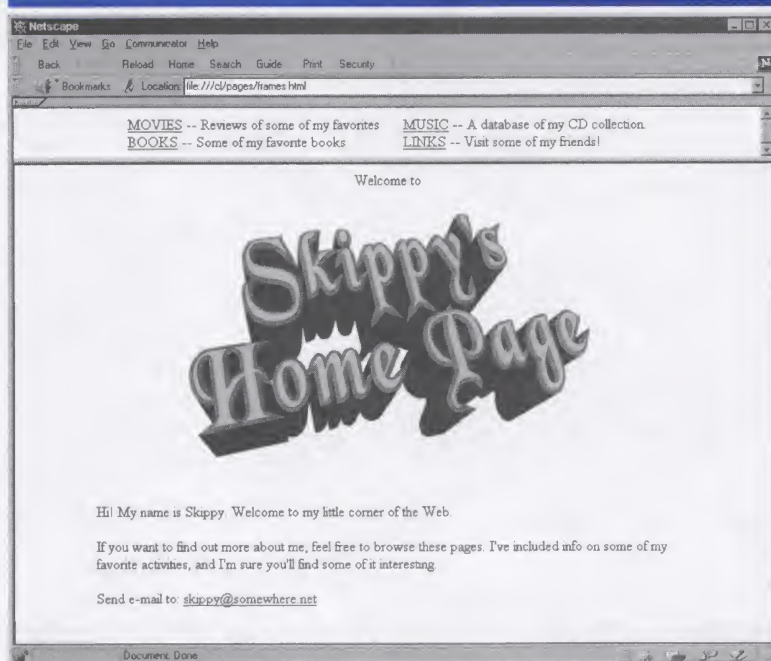
To add a new frame, select an existing frame and click on the "Split Frame" button

to subdivide it. You can resize frames by placing your mouse pointer on a border and dragging it in the direction you want. As an alternative, you can enter a new number in the "Frame Dimensions" box.

When you have your frames laid out the way you want them, click Next. Frame-It will move on to the window in **Figure C**. Here, you'll enter the text you want to display for browsers that don't support frames. You can also choose background and



Figure E




In a matter of minutes, we created a new home page for Skippy, complete with frames.

colors, as well as a background image, for this page.

Your final step is to save your work. As **Figure D** on page 9 shows, you have a choice of generating a new HTML file or copying the frameset code into your Windows clipboard so you can paste it into an existing file. If you've selected a browser (in the Options menu), you can click on its icon and see the results of your work immediately. In **Figure E**, you can see the frames we created for Skippy's home page.

## Notes

Frame-It is available for Windows 3.11 and 95. Although the documentation doesn't list system requirements, the Web site notes that the program is "not resource hungry."

GME Systems originally released Frame-It as shareware, but is now offering it free of charge. On the download page, you'll want to make a note of the user name and registration code so you can enter them into the program. 

## The problem of direct linking

The jurisdiction of copyright law is best defined like this: any original work in a "fixed form" enjoys copyright protection, including material in various electronic formats. However, it gets more confusing when you realize that copyright law has remained unchanged throughout the short life of the Web. It's easy to see how the nature of the Internet can lead to some misconceptions and confusion about what falls under copyright law and what doesn't.

One of the more unusual problems in this regard is a practice often known as direct linking. In this article, we'll explain how it works, why it's a problem, and what you can do about it.

### What is direct linking?

Direct linking is a method of obtaining material for your Web site by linking to files, either graphic or audio, on someone else's Web server. The content will appear exactly

as if it were coming from your own Web server and visitors to your Web page will never know the difference.

Any page with a nice-looking image or cool MIDI file is vulnerable. Web sites that offer free content such as graphics or MIDI files are particularly susceptible to direct linking because the owners of these sites explicitly give permission to use the material. The owners often post "terms of usage" that include a request not to link directly to the files, explaining that users should download the files they want and then upload them to their own Web servers.

However, users don't always read the terms. Or, not understanding the nature of the problem, they may see this request as nothing more than a silly little thing the site's owner has chosen to worry about needlessly. They may see no compelling reason to go to the trouble of downloading files and then uploading them somewhere else.



## So why is it a problem?

The obvious problem with direct linking is that of intellectual property. The person who creates a graphic or MIDI file has both the legal and ethical right to control and profit from its use. If a direct linker doesn't have permission to use the file, the link constitutes copyright infringement.

If the site's owner gives blanket permission for the free use of the material, such as you typically find at a free graphics archive, the intellectual property argument may not be quite as strong (although users still can't take credit for its creation). However, another problem remains: the cost of bandwidth, or the amount of data a server can transmit.

Most Web hosting services place a monthly limit on the amount of bandwidth each site can use. Every time someone accesses a file from the site, it counts against this limit. This includes HTML, graphics, audio, Java applets, and any other files associated with the site.

It doesn't matter whether a file request comes from a link within the same site or from a page located on a system halfway around the world. Either way, the server ends up transmitting data, and someone has to pay for it.

If a site stays under its monthly limit, the cost is simply part of the regular fee the site owner pays the hosting service. In this case, there's no problem.

However, if a site reaches its bandwidth limit before the end of the month, its owner may find himself facing additional charges. When the usage is a result of traffic to the site itself, the owner has an opportunity to benefit from it. He may be able to collect more revenue from advertising, find more potential clients, or just enjoy greater fame. But, when the extra usage is the result of direct linking, the site's owner ends up paying for other people's use of his content, and he gets nothing in return. If the problem gets bad enough, he may be forced to shut the site down.

A few hosting services offer unlimited bandwidth, so it may appear that directly linking to files on these servers would be

harmless. But it's not that simple. If the load becomes too heavy, the service might decide it needs to impose a limit.

Clearly, direct linking can do real damage to the host. The owner of a personal page that gets just a couple dozen hits per month may believe the bandwidth he uses is insignificant, but in reality, he may not be the only one using it. A moderately popular graphics site could easily become the target of dozens, or even hundreds, of direct linkers. It adds up.

## Dealing with direct linking

As a responsible Web site owner, you're aware of the problems direct linking can cause, and you don't want to impose on anyone. But what about the other side of the coin? How do you protect yourself from people who link to your files?

Unfortunately, you can't prevent it. But you can take a few precautions. First, put a statement on your main page claiming copyright for all original work on

the site. If you're making files available for download, clearly describe the conditions you're placing on their use.

Ask people not to link directly to your files. Include an explanation of the issues involved. Many people are honestly unaware that direct linking is bad, and they're more likely to respect your wishes if they understand the nature of the problem.

The article, "Strategies for protecting your Web site content" that appeared in the August issue, explains some techniques that can be used to defeat direct linking. In particular, it can be very effective to periodically rename your files. In your "no direct linking statement" make it clear that you do this and you will probably discourage some people. The few who still insist on doing it will be left with dead links the next time you rename your files.

If you have a large number of files to protect, it may be easier to put them in one directory and rename the directory. To update your HTML files with the correct name, just load them into a text editor and do a search-and-replace.

**If a direct linker doesn't have permission to use the file, the link constitutes copyright infringement.**



## Finding offenders

The Help page at AltaVista documents a way to search for images on the Web. To use their example, if you want images that contain "elvis" in their names, enter image:elvis in the search form.

You can use a variation of this method to find direct links. Since the full URL of a file will have to appear in the HTML tag for a direct link, you can specify domain and directory names for the search. Enter image:yourdomain.com (or image:yourisp.com/username) to find pages with links to files on your site. Keep in mind, though, that this will find offending pages only if they're registered with AltaVista.

If you have access to your server log files you can simply skim through them quickly, looking for isolated requests for graphics or audio files. For a popular site, this could be an impossibly time-consuming task, so you may have to settle for random spot-checks.

Suppose you have a page named welcome.html, and it displays an image named welcome.gif. Any legitimate request for welcome.gif should occur very close to a request for welcome.html, and both requests should come from the same IP address. A single isolated request for welcome.gif may signal a direct link. Several isolated requests almost certainly do.

Depending on their format, the logs may tell you which page each file request came from. This can pinpoint pages that link directly to your files. If the logs don't give you referring pages, at least you'll know you have a problem, and you'll know which files are involved.

## Dealing with direct linkers

After you find someone who's linking directly to your files, what do you do? First, stifle any impulses you may have to hire thugs with Louisville Sluggers to pay him a visit or to fire off threatening, confrontational letters. The offender may not have known any better, and a gentle nudge in

the right direction may be enough to clear everything up.

Write a firm but polite email explaining the nature of the problem and ask him to remove the link. If the file in question is one that you've made freely available, mention that he's welcome to download it and place it on his own Web site. Also point out that you could decide to rename or delete the file at any time.

## More resources

If you'd like more advice on how to combat direct linking, pay a visit to Web Guard. This site is full of suggestions for Webmasters who have concerns about direct linking, sample email messages you can send violators, and general information about copyright law. They even operate a Web ring. Web Guard's home page is located at

[www.darklock.com/webguard/](http://www.darklock.com/webguard/)

For another perspective on direct linking, visit the Web Developer's Virtual Library. The site features a good article by Linda Cole examining

various aspects of the problem. Point your browser to

[Stars.com/Authoring/Graphics/Theft/](http://Stars.com/Authoring/Graphics/Theft/)

WARP (Web Artists' Rights Protection) and Web Prestige are two Web sites that also explain this problem very well. You might want to link to one or both of these sites as a way of demonstrating to doubtful users that direct linking is a widely recognized problem rather than some silly little thing you've chosen to worry about needlessly. And if your own request doesn't move them to cooperate, maybe an explanation with different wording will get through to them. You can find these pages at

[www.geocities.com/SiliconValley/Park/2324/](http://www.geocities.com/SiliconValley/Park/2324/)

and

[www.widowsweb.com/widows/plea.html](http://www.widowsweb.com/widows/plea.html)

**After you find someone who's linking directly to your files, write a firm but polite email explaining the nature of the problem and ask him to remove the link.**



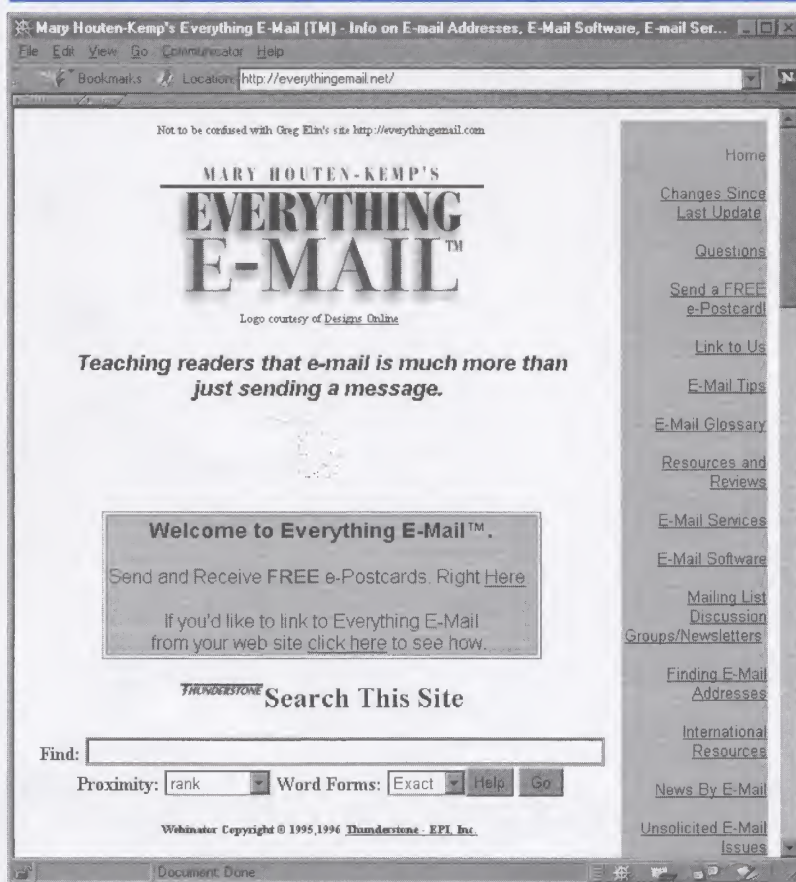
## Site of the month: Everything E-mail

A recent survey by Ernst & Young (business and financial advisers) indicates that email is the most common online business application. The study shows that 36 percent of professionals use email more frequently than any other communication tool. Another survey by Deloitte & Touche shows that 91 percent of executives believe that by the year 2005, the Internet will be the primary source of business information. Email probably accounts for more Internet traffic than any other Internet protocol. Our *Inside the Internet* site of the month for November is designed to help you get the most out of email communications.

Mary Houten-Kemp's Everything E-mail Web site, shown in Figure A, is a great resource for tips and techniques to improve your email messages. The site provides information on mailing-list discussion groups, how to start a mailing list, finding email addresses, email resources and reviews, software and services, spam, international resources, news by email, autoresponders, and even an email glossary. The site also includes tips on signature lines, email discussions groups, software, switching email accounts, Web site email suggestions, and email netiquette. Everything E-mail is located at

[everythingemail.net/](http://everythingemail.net/)

Figure A



Mary Houten-Kemp's Everything E-mail Web site is a great resource of tips and techniques for improving email.

## Web Fanatic: Checking email with E-mail Notify

By Buzz Webster

*Look Ma! Email with no hands!*

Once, long ago and far away, I met a man who asked me, "Buzz, is there some way to find out if I have new email messages, without dialing into my Internet account?" The guy didn't have a

clue. I explained how email accounts and Internet connections work. He cried. But that was long ago.

Email is, undoubtedly, one of the most important forms of communication on this



planet. The people at Cyber-Info understand how important email is; that's why they've created E-mail Notify, shown in [Figure A](#). This cuspy software utility checks your email even when you're not on the Internet. Standby a moment or two, I'll explain. Most email-checker programs only work with a dedicated Internet connection, but E-Mail Notify can also use your dial-up connection to automatically log on and check your mail! All you have to do is fill in your SMTP pop server name, your email address and password. You'll also need to select from a few options (did I say a few?) that determine how and when E-Mail Notify will check your email and alert you to new messages. E-mail Notify sits in your system tray and waits for the designated time, then it dials your ISP and checks your email!

Now, let's talk about a "few" of those options. Actually, E-Mail Notify gives you loads of options for determining how you want to check for email, options like

- Automatic Check
- Check on Startup
- Don't check mail being read
- Check mail at a specified time
- Double-click tray-icon to check mail

There's also an entire set of notification options that let you do things like, play a wav file, display notification wallpaper, or include your own special effect when new mail arrives. And E-mail Notify can automatically launch your preferred email software to open email messages or it can use its own built-in email client, which includes an address book and capability to add attachments (and automatically zip them if you like). But that's not all, nooooo! E-mail Notify can also hang-up a connection after checking for email, check your HotMail account, check multiple email accounts—including your HotMail account forward email to another address, send faxes, and filter spam—it even includes its own spammer list. Hold on a second, I'm getting dizzy! There's more!

E-Mail Notify provides several standard Windows and Internet utilities, shown in the menu in [Figure B](#). These utilities give you quick access to system information, let you disable system keys and log off/restart/shutdown Windows, go to the DOS prompt, and work with IP addresses.

Talk about feature-rich! There's more, but you'll have to explore E-Mail Notify yourself because I've got to go read my email!

## Bottom line

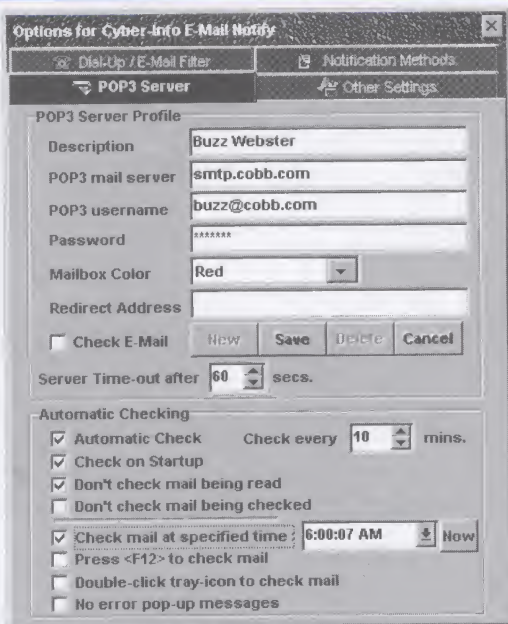
E-Mail Notify is available for Windows 95, 98, or NT. It's shareware, but it only costs 20 bucks!

## A kinder, gnarlier Buzz

*He who stops being better, stops being good.  
Oliver Cromwell*

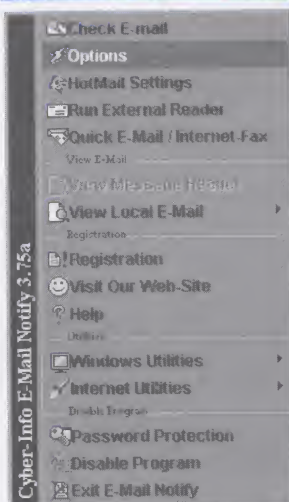
To celebrate my 200th article, I've updated my Web site. I've decided that after 200 articles, I need to organize and diversify some. I've added categories, so you can search back issues by hardware, software, Web sites and Internet issues. I've also added a few new sections: my favorite 100 Web sites, 100 Internet tips, 10 Internet books you've got to read, Internet timelines and a little information about myself. I also took it upon myself to make the worlds first State of the Internet Address, which you can read at

Figure A



E-mail Notify checks your email automatically, even when you're not signed onto the Internet!

Figure B



E-Mail Notify provides a variety of Windows and Internet utilities in addition to its email functions.



[www.zdjournal.com/webfan/state/state.htm](http://www.zdjournal.com/webfan/state/state.htm)

I've made some other changes too. From now on I'll only post Web Fanatic articles once each week, and I'll be a little more discerning as to what I include. The Web Fanatic won't just be about what's cool (don't get me wrong, cool is good, I can do cool), and it won't be just about what's new (although everything I talk about will be new), no, the Web Fanatic will be about what works. I

know the Internet is frustrating for some people what with bad connections, disharmonious ISPs, and software that just won't work. My new motto is "don't get mad, get smart." Each and every article I post will be about an Internet essential, the best of the best, the cream de la cream, the cream of the crop, the five star dandies that make you hum—you know, the good stuff. Yow! Anyway, you know the URL, so use it!

[www.zdjournal.com/webfan/](http://www.zdjournal.com/webfan/) 

## Search Tip: Accessing un-indexed Internet databases


Current figures estimate the Web as consisting of well over 100 million pages. However, Internet experts often speculate that the Internet consists of perhaps ten times as many documents. Most of these documents reside in databases that aren't indexed by search engines such as AltaVista and HotBot—primarily because search engine robots can't penetrate many databases due to password protection, firewalls, or other access barriers. The only way to access such databases is to search them locally. The bad news is: first you have to find them. The good news is: you can use a Web site called Internets to track down thousands of databases that aren't indexed by the major search engines.

### Internets

The Internets Web site is an extensive catalog of databases on the Web and quite possibly the largest collection of useful search engines available on the Internet. The site provides links

to thousands of online resources including archives, libraries, research databases, newswires, catalogs, and statistical data. Internets can help you locate databases that are pertinent to your research needs or interests. The Internets site is located at

[www.internets.com](http://www.internets.com)

You can search the Internets Web site by keyword or browse the Internets collection of more than 40 topic categories. To search by keyword (or phrase), go to the Find and Engine search box, enter a search topic and click the *search* below the text box or press [Enter]. To search by topic category, go to the Categories search box and use the dropdown box to select the category you want. Then click the Select and Go! button. Internets also provides direct access to several major search engines. Just use the Search the Web dropdown list in Internets' navigation bar to access search engines such as AltaVista, DejaNews, HotBot, Info-Seek, Lycos, WebCrawler, and Yahoo! 

[www.zdjournal.com/int](http://www.zdjournal.com/int)

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### FindLaw

FindLaw is an excellent Web directory of law resources on the Internet. This site is designed in the familiar Yahoo! Style, providing easy access to 14 categories covering subject areas such as professional development, legal organizations, law firms and lawyers, law cases and codes, U.S. Federal Government resources, state law resources, news, legal practice materials, legal communities, and a legal subject index. In addition, you'll find links to a Web search engine called LawCrawler (powered by AltaVista), information about law books, U.S. Federal and state tax forms, and other legal resources. FindLaw is located at

[www.findlaw.com/](http://www.findlaw.com/)

### Symbols.com

This Web site consists of an encyclopedia of more than 2,500 symbols, ranging from Cro-Magnon ideograms to subway graffiti. The site is arranged in 54 graphic characteristic groups which you can search by a word index or graphic search engine. The site also includes more than 1,600 articles detailing symbol meanings and histories. You can explore symbols.com at

[www.SYMBOLS.com/](http://www.SYMBOLS.com/)

### Quote Search

This Web site lets you query 12 quotation collections consisting of more than 10,000 quotes. Collections include Cole's Quotables, The USENET fortune file, alt.quotations archives, The Devil's Dictionary, 20th Century Quotations, and Quotations by Women. The site provides a set of search instructions and includes

an advanced search option that lets you limit searches to subject, author, or quotation. You can search for quotes at

[www.starlingtech.com/quotes/search.html](http://www.starlingtech.com/quotes/search.html)

### DefenseLINK

DefenseLINK is the official Web site of the Department of Defense. The site provides links to the official Web sites of the Army, Navy, Air Force, Marine Corps, and National Guard, as well as the Secretary of Defense, the Joint Chiefs of Staff, and related agencies. The DefenseLINK Web site is located at

[www.defenselink.mil/](http://www.defenselink.mil/)

### Medsite Navigator

A very good search engine for finding medical resources on the Internet is The Medsite Navigator Web site. The site includes link stations for medical and scientific journals, medical schools, and companies. There's also a database of drugs, columns on the latest medical news, links to software, newsgroups, forums, weekly alerts from the FDA, CDC and NIH, and more. You'll find the Medsite Navigator Web site at

[www.medsitenavigator.com/index.html](http://www.medsitenavigator.com/index.html)

### GovBot's

The GovBot Web site is an index of more than 840,000 U.S. government and military Web sites. This search engine indexes only sites with .gov and .mil domain name suffixes so you know when you enter a query that you won't get back any non-government Web pages. The GovBot search engine is built on the INQUERY information retrieval system, and employs a relevance-ranking algorithm for searching, and displays search results with the most-relevant items appearing first on the results list. The GovBot Web site is located at

[cobar.cs.umass.edu/ciirdemo/Govbot/](http://cobar.cs.umass.edu/ciirdemo/Govbot/) 